
FISSION YIELD PREDICTIONS WITH TALYS

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The new nuclear model code TALYS [1] has been extended to enable the prediction of fission yields. Fission competition is taken into account throughout the whole evaporation chain. Subsequently, the fission fragment mass yields are computed per excitation energy bin for each fissioning residual nucleus in two steps:

- the relative contributions of the different fission modes are evaluated with the Hill-Wheeler penetrability through inverted parabolic barriers using ground-state level densities and temperature-dependent barrier parameters [2],
- the fission-fragment mass distributions corresponding to each fission mode are calculated in the framework of the multi-modal random-neck rupture model by Brosa et al. [1,2].

Finally, the charge yields of the fission fragment are determined using the scission-point model [4]. Both actinide and subactinide fission-fragment mass yields and isotopic yields are compared to experimental results.

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